

REMARKS

Claims 1-19 are pending in the present application.

A. Rejection of Claims 1-3, 6-12, and 15-19 under 35 U.S.C. §102(e)

Claims 1-3, 6-12, and 15-19 have been rejected under 35 U.S.C. §102(e) as being anticipated by Suzuki et al. (US-A-6,875,936). This rejection is respectfully traversed.

As respectfully submitted above, independent claim 1 recites a micromechanical relay which comprises a substrate; a source contact mounted on the substrate; a gate contact mounted on the substrate; a pair of drain contacts mounted on the substrate; and a metallic deflectable beam. The metallic deflectable beam includes a metallic conductive beam body having a first end and a second end, the first end of the conductive beam body being attached to the source contact, the metallic conductive beam body extending substantially in parallel to the substrate such that the second end of the metallic conductive beam body extends over the drain contacts; a beam contact overhanging the drain contacts; and an insulator positioned between the second end of the metallic conductive beam body and the beam contact to join said second end of the conductive beam body to the beam contact and to electrically insulate the metallic conductive beam body from the beam contact. The second end of the metallic conductive beam body, the beam contact, and the insulator forming stacked planar layers.

In rejecting independent claim 1, the Examiner alleges that Suzuki et al. meets all the limitations of independent claim 1. This position by the Examiner is respectfully traversed.

As set forth by amended independent claim 1, a metallic deflectable beam includes a metallic conductive beam body. Moreover, as set forth by amended independent claim 1, the first end of the metallic conductive beam body is attached to the source contact, and the metallic conductive beam body extends substantially in parallel to the substrate such that the second end of the metallic conductive beam body extends over the drain contacts. In contrast, Suzuki et al. teaches a beam body which is composed of a silicon cantilever.

In other words, Suzuki et al. fails to teach a metallic deflectable beam including a metallic conductive beam body. Moreover, Suzuki et al. fails to teach the first end of the metallic conductive beam body being attached to the source contact and/or the metallic conductive beam body extending substantially in parallel to the substrate such that the second

end of the metallic conductive beam body extends over the drain contacts. Therefore, Suzuki et al. fails to the presently claimed invention, as set forth by amended independent claim 1.

With respect to amended independent claim 11, this claim recites a method for making a micromechanical relay by (a) forming a source contact, a gate contact, and a pair of drain contacts upon a substrate; (b) forming a sacrificial region over the source contact, gate contact, drain contacts, and substrate; (c) forming a conductive beam contact region on the sacrificial region having the drain contacts thereunder; (d) forming an insulative region over the beam contact region; and (e) forming a metallic conductive beam body on the source contact, the metallic conductive beam body being formed further to extend laterally over the sacrificial region and the insulative region such that the metallic conductive beam body, the beam contact region, and the insulative region form stacked planar layers, the formed metallic conductive beam body extending laterally substantially over the source contact, gate contact, and drain contacts.

In rejecting independent claim 11, the Examiner relies upon the same arguments for rejecting independent claim 1. These positions by the Examiner are respectfully traversed.

As set forth by amended independent claim 11, a metallic conductive beam body is formed on the source contact, the metallic conductive beam body being formed further to extend laterally over the sacrificial region. Moreover, as set forth by amended independent claim 11, the formed metallic conductive beam body extends laterally substantially over the source contact, gate contact, and drain contacts. In contrast, Suzuki et al. teaches a beam body which is composed of a silicon cantilever.

In other words, Suzuki et al. fails to teach a metallic deflectable beam including a metallic conductive beam body. Moreover, Suzuki et al. fails to teach the first end of the metallic conductive beam body being attached to the source contact and/or the metallic conductive beam body extending substantially in parallel to the substrate such that the second end of the metallic conductive beam body extends over the drain contacts. Therefore, Suzuki et al. fails to the presently claimed invention, as set forth by amended independent claim 11.

With respect to dependent claims 2, 3, 6-10, 12, and 15-20, these claims depend from allowable independent claims 1 and 11. The Applicants reserve the right to present arguments at a later date to support the patentability of dependent claims 2, 3, 6-10, 12, and 15-20.

Accordingly, in view of the above submitted remarks, the Examiner is respectfully requested to reconsider and withdraw this rejection under 35 U.S.C. §102(e).

B. Rejection of Claims 1-19 under 35 U.S.C. §103

Claims 1-19 have been rejected under 35 U.S.C. §103 as being unpatentable over Suzuki et al. (US-A-6,875,936) in view of Zavracky (US-A-5,638,946). This rejection is respectfully traversed.

As noted above, independent claim 1 recites a micromechanical relay which comprises a substrate; a source contact mounted on the substrate; a gate contact mounted on the substrate; a pair of drain contacts mounted on the substrate; and a metallic deflectable beam. The metallic deflectable beam includes a metallic conductive beam body having a first end and a second end, the first end of the conductive beam body being attached to the source contact, the metallic conductive beam body extending substantially in parallel to the substrate such that the second end of the metallic conductive beam body extends over the drain contacts; a beam contact overhanging the drain contacts; and an insulator positioned between the second end of the metallic conductive beam body and the beam contact to join said second end of the conductive beam body to the beam contact and to electrically insulate the metallic conductive beam body from the beam contact. The second end of the metallic conductive beam body, the beam contact, and the insulator forming stacked planar layers.

In rejecting independent claim 1, the Examiner alleges that the combination of Suzuki et al. in view of Zavracky meets all the limitations of independent claim 1. This position by the Examiner is respectfully traversed.

As set forth by amended independent claim 1, a metallic deflectable beam includes a metallic conductive beam body. Moreover, as set forth by amended independent claim 1, the first end of the metallic conductive beam body is attached to the source contact, and the metallic conductive beam body extends substantially in parallel to the substrate such that the second end of the metallic conductive beam body extends over the drain contacts.

In contrast, Suzuki et al. teaches a beam body which is composed of a silicon cantilever. In other words, Suzuki et al. fails to teach a metallic deflectable beam including a metallic conductive beam body. Moreover, Suzuki et al. fails to teach the first end of the metallic

conductive beam body being attached to the source contact and/or the metallic conductive beam body extending substantially in parallel to the substrate such that the second end of the metallic conductive beam body extends over the drain contacts.

With respect to Zavracky, Zavracky teaches the second end of the conductive beam body, the beam contact, and the insulator are non-stacked materials. In other words, Zavracky fails to teach a metallic deflectable beam including a metallic conductive beam body, as set forth by amended independent claim 1. Moreover, Zavracky fails to teach the first end of the metallic conductive beam body being attached to the source contact and/or the metallic conductive beam body extending substantially in parallel to the substrate such that the second end of the metallic conductive beam body extends over the drain contacts, as set forth by amended independent claim 1.

Thus, Suzuki et al. and Zavracky, singly or in combination, fail to teach or suggest that a metallic deflectable beam including a metallic conductive beam body, as set forth by amended independent claim 1. Moreover, Suzuki et al. and Zavracky, singly or in combination, fail to teach or suggest that the first end of the metallic conductive beam body being attached to the source contact and/or the metallic conductive beam body extending substantially in parallel to the substrate such that the second end of the metallic conductive beam body extends over the drain contacts, as set forth by amended independent claim 1.

With respect to amended independent claim 11, this claim recites a method for making a micromechanical relay by (a) forming a source contact, a gate contact, and a pair of drain contacts upon a substrate; (b) forming a sacrificial region over the source contact, gate contact, drain contacts, and substrate; (c) forming a conductive beam contact region on the sacrificial region having the drain contacts thereunder; (d) forming an insulative region over the beam contact region; and (e) forming a metallic conductive beam body on the source contact, the metallic conductive beam body being formed further to extend laterally over the sacrificial region and the insulative region such that the metallic conductive beam body, the beam contact region, and the insulative region form stacked planar layers, the formed metallic conductive beam body extending laterally substantially over the source contact, gate contact, and drain contacts.

In rejecting independent claim 11, the Examiner relies upon the same arguments for rejecting independent claim 1. These positions by the Examiner are respectfully traversed.

As set forth by amended independent claim 11, a metallic conductive beam body is formed on the source contact, the metallic conductive beam body being formed further to extend laterally over the sacrificial region. Moreover, as set forth by amended independent claim 11, the formed metallic conductive beam body extends laterally substantially over the source contact, gate contact, and drain contacts.

In contrast, Suzuki et al. teaches a beam body which is composed of a silicon cantilever. In other words, Suzuki et al. fails to teach a metallic deflectable beam including a metallic conductive beam body. Moreover, Suzuki et al. fails to teach the first end of the metallic conductive beam body being attached to the source contact and/or the metallic conductive beam body extending substantially in parallel to the substrate such that the second end of the metallic conductive beam body extends over the drain contacts.

With respect to Zavracky, Zavracky teaches the second end of the conductive beam body, the beam contact, and the insulator are non-stacked materials. In other words, Zavracky fails to teach a metallic conductive beam body is formed on the source contact, the metallic conductive beam body being formed further to extend laterally over the sacrificial region, as set forth by amended independent claim 11. Moreover, Zavracky fails to teach the formed metallic conductive beam body extends laterally substantially over the source contact, gate contact, and drain contacts, as set forth by amended independent claim 11.

Thus, Suzuki et al. and Zavracky, singly or in combination, fail to teach or suggest that a metallic conductive beam body is formed on the source contact, the metallic conductive beam body being formed further to extend laterally over the sacrificial region, as set forth by amended independent claim 11. Moreover, Suzuki et al. and Zavracky, singly or in combination, fail to teach or suggest that the formed metallic conductive beam body extends laterally substantially over the source contact, gate contact, and drain contacts, as set forth by amended independent claim 11.

With respect to dependent claims 2-10 and 12-20, these claims depend from allowable independent claims 1 and 11. The Applicants reserve the right to present arguments at a later date to support the patentability of dependent claims 2-10 and 12-20.

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Accordingly, in view of the above submitted remarks, the Examiner is respectfully requested to reconsider and withdraw this rejection under 35 U.S.C. §103.

Conclusion

Accordingly, in view of the reasons set forth above, the Examiner is respectfully requested to reconsider and withdraw the present rejections. Also, an early indication of allowability is earnestly solicited.

Respectfully submitted,



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